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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/887,793 | 06/22/2001 | Richard W. Adkisson | 10010788-1 | 7648 |
| 7590 | 04/21/2004 | | EXAMINER | |
| HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, CO 80527-2400 | | | CHEN, TSE W | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2116 | |
| DATE MAILED: 04/21/2004 | | | | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|----------------------|----------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/887,793 | ADKISSON, RICHARD W. |
| | Examiner Tse Chen | Art Unit 2116 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 June 2001.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,11-14, 18-20 is/are rejected.
 7) Claim(s) 2-10 and 15-17 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 22 June 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to because of the following informalities:
 - the filing date and serial number of related application declared on line 10 of page 1 should be filled in; and
 - trademarks are usually denoted by capitalizing all letters of their names, therefore, “SYNC” should be changed to “sync” to avoid any potential confusion as to whether this terminology is a trademark.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Magro et al., U.S. Patent 6516362, hereinafter Magro.
4. As per claim 1, Magro taught an invention for synchronizing a first circuit portion [FIG. 2B, item 104] operating in a first clock domain that is clocked with a first clock signal [FIG. 2B, item 106] and a second circuit portion [FIG. 2B, item 130] operating in a second clock domain that is clocked with a second clock signal [FIG. 2B, item 110], the invention comprising of:

- Means for generating a sync pulse signal [FIG. 3A, item 206] based on a predetermined temporal relationship between a first and second clock signals [column 8, lines 22-27, lines 30-33]; and
- A clock synchronizer controller operable to generate a plurality of control signals based on sync pulse signal [column 6, lines 64-66], said clock synchronizer controller including a sync adjuster operable to re-position said sync pulse signal based on a skew between said first and second clock signals [column 9, lines 53-67; column 10, lines 34-49], wherein a least a portion of said plurality of control signals actuate data transfer synchronizer circuitry disposed between said first and second circuit portions [column 7, lines 59-66; column 12, lines 33-50].

5. As per claim 11, Magro taught an invention for synchronizing data transfer operations between two circuit portions across a clock domain boundary [abstract]:

- Generating a secondary clock signal from a primary clock signal [FIG. 2B, item 108], wherein said primary clock signal [FIG. 2B, item 106] is operable to clock a first circuit portion [FIG. 2B, item 104] and said secondary clock signal [FIG. 2B, item 110] is operable to clock a second circuit portion [FIG. 2B, item 20];
- Generating a sync pulse signal [FIG. 3A, item 206] based on a predetermined temporal relationship between said primary and secondary clock signals [column 8, lines 22-27, lines 30-33];
- Compensating for a skew between said primary and secondary clock signals and adjusting said sync pulse signal, if necessary [column 10, lines 34-49]; and

- Generating data transfer control signals at appropriate times relative to said primary and secondary clock signals [column 7, lines 59-66; column 12, lines 33-50] based on said sync pulse signal [column 9, lines 53-67] to control data transfer operations between said first and second circuit portions.

6. As per claim 12, Magro taught the secondary clock signal is generated by a phase-locked loop based on the primary clock signal [FIG. 2B, item 108].

7. As per claim 13, Magro taught the sync pulse signal is generated when a rising edge in the primary clock signal coincides with a rising edge in the secondary clock signal [column 8, lines 30-36].

8. As per claim 14, Magro taught the sync pulse signal is corrected if the sync pulse signal has a select clock period difference with respect to the primary clock signal [column 10, lines 18-49].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Magro as applied to claim 11 above, and further in view of Csoppenszky et al, U.S. Patent 5987081, hereinafter Csoppenszky.

11. Magro taught a synchronizer for transferring data between two different clock domains by generating various data transfer control signals [column 6, lines 64-66] for the data transfer synchronizer circuitry [FIG. 2B, item 130] disposed between the first and second circuit portions.

12. However, Magro did not disclose expressly the details of configuration in which the data transfer control signals are transferred.

13. Csoppenszky taught a synchronizer for data transfer between clock domains [abstract], the synchronizer comprising of data transfer control signals that are staged through a plurality of registers [column 6, lines 7-36].

14. An ordinary artisan at the same time the invention was made would have been motivated to look for a stable way to transfer data in a system with two different clock domains [see Csoppenszky: column 1, lines 11-45].

15. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Magro and Csoppenszky because of the aforementioned motivation and also their involvement in similar problems regarding the synchronization of data transfer in a two-clock domain system.

16. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magro as applied to claim 11 above.

17. Magro taught a synchronizer for transferring data between two different clock domains. However, Magro did not disclose expressly the source for the two different clocks.

18. It would have been obvious to an ordinary artisan to utilize a core clock for the primary clock signal and a bus clock for the secondary clock signal because Applicant has not disclosed an advantage, a particular purpose, or solution to a stated problem for each of the respective

clock source. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with other clock sources because the Applicant's invention is intended to synchronize two different clock signals, irrelevant of their generating sources.

19. Therefore, it would have been obvious to one of ordinary skill in the art to use a core clock for the primary clock signal and a bus clock for the secondary clock signal to obtain the invention as specified in claims 19 and 20.

Allowable Subject Matter

20. Claims 2-10 and 15-17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

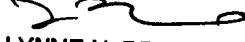
- a. McDonald, U.S. Patent 6362898, disclosed a synchronizer with tap delays.
- b. Heyward et al., U.S. Patent 5654988, disclosed a multi-stage synchronizer.
- c. Sager, U.S. Patent 5680644, disclosed a synchronizer with multiple registers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (703) 305-8580. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
April 9, 2004


LYNNE H. BROWNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100